

Appl. No 10/807,974
Dated: March 1, 2010
Reply to Office action of December 1, 2009

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A surgical access device, comprising:

an elongate tubular member having a working channel and an axis extending between a proximal end and a distal end;

a septum seal integrally formed at the distal end of the tubular member, the septum seal comprising an elastomeric sheet having a frusto-conical shape and an orifice through the elastomeric sheet, the orifice configured to receive an instrument;

and

a zero seal disposed at the distal end of the tubular member and distal to the septum seal, the zero seal being sized and configured to seal when no instrument is in place within the working channel of the tubular member, and the zero seal being coupled to the septum seal.
2. (Original) The surgical access device of claim 1, wherein the tubular member is formed from an elastomeric material.
3. (Original) The surgical access device of claim 1, wherein the zero seal is a duckbill seal constructed with an intersecting sealing portion.
4. (Original) The surgical access device of claim 1, wherein the zero seal is a double duckbill seal constructed with two or more intersecting sealing portions

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5. (Original) The surgical access device of claim 1, further comprising a retaining portion at the proximal end of the tubular member.
6. (Original) The surgical access device of claim 5, wherein the retaining portion is a flange or a ring.
7. (Original) The surgical access device of claim 1, wherein the tubular member and the septum seal are molded together as a single unit.
8. (Original) The surgical access device of claim 7, wherein the zero seal is bonded, fused or over-molded with the septum seal.
9. (Original) The surgical access device of claim 1, wherein the tubular member, the septum seal and the zero seal are molded together or integrally formed as a single unit.
10. (Withdrawn) The surgical access device of claim 1, wherein the tubular member further comprises flexibility enhancing features to allow the tubular member to flex in response to a motion of a surgical instrument within the working channel of the tubular member.

11. (Withdrawn) The surgical access device of claim 10, wherein the flexibility enhancing features are formed around the distal end of the tubular member.

12. (Withdrawn) The surgical access device of claim 10, wherein the flexibility enhancing features are formed along the tubular member.

13. (Withdrawn) The surgical access device of claim 10, wherein the flexibility enhancing features provide a floating motion to the septum seal and the zero seal.

14. (Withdrawn) The surgical access device of claim 1, further comprising a second septum seal disposed at or near the proximal end of the tubular member.

15. (Canceled)

16. (Withdrawn) The surgical access device of claim 14, further comprising a second zero seal disposed at or near the proximal end of the tubular member distal to the second septum seal, wherein the second zero seal is being sized and configured to seal when no instrument is in place within the working channel of the tubular member.

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17. (Withdrawn) The surgical access device of claim 1, wherein the tubular member has at least one section that gradually tapers to facilitate placement of the access device through a body wall.

18. (Withdrawn) The surgical access device of claim 1, wherein the tubular member includes at least one region having a reduced wall section or thickness.

19. (Withdrawn) The surgical access device of claim 18, wherein the reduced thickness region is at or near the distal end of the tubular member.

20. (Original) The surgical access device of claim 1, further comprising a placement device for placing the access device.

21. (Original) The surgical access device of claim 20, wherein the placement device is an obturator operable to pierce or penetrate tissue.

22. (Original) The surgical access device of claim 20, wherein the placement device includes an elongate shaft having a proximal end, a mid-portion and a distal end.

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23. (Previously presented) The surgical access device of claim 22, wherein the proximal end of the elongate shaft includes a handle sized and configured to be held by a user.

24. (Previously presented) The surgical access device of claim 22, wherein the mid-portion of the elongate shaft has a reduced profile and is sized and configured to extend through the tubular member.

25. (Previously presented) The surgical access device of claim 22, wherein the distal end of the elongate shaft is shaped like an hourglass.

26. (Previously presented) The surgical access device of claim 22, wherein the distal end of the elongate shaft comprises a tapered, cone-shaped member.

27. (Withdrawn) The surgical access device of claim 22, further comprising a venting lumen within the shaft of the placement device providing fluid communication between the distal end and the proximal end of the placement device.

28. (Withdrawn) The surgical access device of claim 20, further comprising an elastomeric shield member sized and configured to fit over the shaft of the placement device.

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29. (Withdrawn) The surgical access device of claim 28, wherein as the placement device is withdrawn, the elastomeric shield member everts and is drawn into distal openings of the septum seal and the zero seal.

30. (Withdrawn) The surgical access device of claim 1, wherein the tubular member has a rigid or semi-rigid wall.

31. (Withdrawn) The surgical access device of claim 1, wherein the tubular member is reinforced with a coil along a portion of the tubular member.

32. (Withdrawn) The surgical access device of claim 31, wherein the reinforced portion terminates adjacent to a distal seal portion.

33. (Withdrawn) The surgical access device of claim 31, wherein the tubular member includes a distal, mechanically deployable shielding portion.

34. (Original) The surgical access device of claim 3, wherein the duckbill seal comprises opposing lip portions separated by a slit portion.

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35. (Original) The surgical access device of claim 34, wherein the opposing lip portions are coated with or attached to a soft or occlusive material providing back pressure forcing the lip portions to close even when the duckbill seal is slightly open.

36. (Previously presented) The surgical access device of claim 35, wherein the occlusive material is one of silicone, Kraton, and polyurethane.

37. (Previously presented) The surgical access device of claim 35, wherein the opposing lip portions allow a surgical item to extend through the slit portion without disrupting a seal formed by the closure of the opposing lip portions.

38. (Original) The surgical access device of claim 37, wherein the surgical item is a surgical suture.

39-74. (Canceled)

75. (Previously presented) The surgical access device of claim 1, wherein the orifice comprises a hole.

76. (Previously presented) The surgical access device of claim 1, wherein the orifice comprises a piercing.

77. (New) A surgical access device, comprising:

- an elongate tubular member having a working channel and an axis extending between a proximal end and a distal end;
- a septum seal integrally formed at the distal end of the tubular member, the septum seal comprising an elastomeric sheet and an orifice through the elastomeric sheet, the orifice configured to receive an instrument; and
- a duckbill valve positioned distal of the septum seal, the duckbill valve comprising:
 - opposing lip portions;
 - two crossing slits separating the opposing lip portions; and
 - an occlusive material attached to the opposing lip portions.

78. (New) The surgical access device of claim 77, wherein the two crossing slits are arranged at right angles in a single plane.

79. (New) The surgical access device of claim 77, wherein the occlusive material includes one of silicone, kraton, and polyurethane.

80. (New) The surgical access device of claim 77, wherein the duckbill valve forms a complete seal with a selected item extending through the lip portions.

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81. (New) The surgical access device of claim 77, further comprising an enlarged retaining flange at the proximal end of the tubular member.

82. (New) The surgical access device of claim 77, wherein duckbill valve comprises a plurality of folds.

83. (New) The surgical access device of claim 77, wherein the septum seal comprises a bonding feature, and wherein the duckbill valve is attached to the bonding feature.

84. (New) A surgical access device, comprising:
an elongate tubular member having a working channel and an axis extending between a proximal end and a distal end; and
a seal system at the distal end of the tubular member, the seal system comprising:
a septum seal comprising a septum having an orifice sized and configured to seal in conjunction with a specific range of usable instruments; and
a zero seal coupled to the septum seal and being sized and configured to seal when no instrument is in place within the working channel of the tubular member.

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85. (New) The surgical access device of Claim 84, wherein the zero seal is coupled to the septum seal by bonding.

86. (New) The surgical access device of Claim 85, wherein the septum seal comprises a bonding feature for attaching the zero seal thereto.

87. (New) The surgical access device of Claim 84, wherein the septum seal is coupled to the septum seal by fusing.

88. (New) The surgical access device of Claim 84, wherein the septum seal and the zero seal are formed in a monolithic construction.

89. (New) The surgical access device of Claim 84, wherein the septum comprises an elastomeric sheet having a frusto-conical shape.